

The Potential of Transdisciplinary Learning: Case Study from the Art of Québec

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“The task of art is to transform what is continuously happening to us into symbols, into music, into something which can last in man’s memory... — Jorge Luis Borges (speaking to filmmaker German Kral).

Introduction

There has been a history of dissatisfaction with public education in the United States. (Dewey, 1933; Freire, 1970; Bloom, 1987; Sizer, 1992; Sykes, 1995; Hood, 1993). In Europe, where there has also been dissatisfaction, Edgar Morin found fault with the disciplinary approach. In 1999, he wrote that it is limited and limiting, for a discipline carries its own specificity, its own way of thinking, and disciplinary teachers are isolated from colleagues in other disciplines (3-49). Most contemporary French curricula are disciplinary in nature, requiring that students study from a cognitive perspective focusing on language and grammar. Culture is presented from a linguistic viewpoint. Yet in the middle of the twentieth century, it became evident that bridges were necessary between disciplines. A number of approaches evolved. Nicolescu compared multidisciplinary (which involves a research topic in several disciplines simultaneously) and interdisciplinarity (which concerns the transfer of the methods of one discipline from another) (Nicolescu, *Transdisciplinary Evolution 2*). Tchudi’s work (1993) showed how the chasm between the sciences and the humanities could be bridged by interdisciplinary learning and the integrated curriculum.

The objective of this study is to demonstrate the potential of the transdisciplinary paradigm in the FLS program with specific regard to how it helps learners *understand meaning*. A

single work of art has been chosen as a case study. *Le vieux de '37* (circa 1907), by Henri Julien, an illustration later renamed *Le patriote*, was taught at the advanced level. Transdisciplinary philosophy and methodology are referenced; as are the confluence of *different levels of reality* and *levels of perception; logic, and complexity*. The study concludes with comments on the significance of the transdisciplinary paradigm for French Language Studies (FLS).

Transdisciplinarity

Transdisciplinarity is the brain child of Basarab Nicolescu, a Romanian-born quantum physicist, prolific writer, and founder of the *Centre international de recherches et études transdisciplinaires* (CIRET) in Paris. In *La Transdisciplinarité, manifeste* (later translated as *Charter of Transdisciplinarity*, signed at the Convento de Arrábida in Portugal November 6, 1994 by Lima de Freitas, Edgar Morin and Nicolescu), transdisciplinarity is defined thus: “The keystone of transdisciplinarity is the semantic and practical unification of the meanings that *traverse* and *go beyond* the disciplines” (Nicolescu, “Charter of Transdisciplinarity”, *Manifesto*, art. 4, 149). Transdisciplinary thinkers focus on *meanings*. The approach is globally open (Nicolescu, “Transdisciplinary Evolution”, 3). It allows the human mind to deal with the complexity of the universe by thinking from the perspective of different levels of reality, in a global way, “as an ecologist would see the living beings in an ecosystem” (Del Re 39). It also focuses on *values* and *relationships*, as will be shown below.

The methodology of transdisciplinarity is axiomatic. “The three pillars of transdisciplinarity - multiple levels of Reality; the logic of the included middle; and complexity - determine the methodology of transdisciplinary research.” (Nicolescu, “Evolution of Learning”, 3). Nicolescu defines the axioms in the following way:

- i. The ontological axiom: There are, in Nature and in our knowledge of Nature, different levels of Reality and, correspondingly, different levels of perception.
- ii. The logical axiom: The passage from one level of Reality to another is insured by the logic of the included middle.
- iii. The complexity axiom: the structure of the totality of levels of Reality or perception is a complex structure: every level is what it is because it exists at the same time.

Nicolescu concludes that the three axioms give a precise and rigorous definition of transdisciplinarity. (“Transdisciplinarity”, 6-7).

Levels of reality and levels of perception

Transdisciplinary thinking posits the confluence of different levels of Reality. By level of Reality, Nicolescu means “a set of systems which are invariant under certain laws” (for example, quantum entities being subject to quantum laws). He envisages a level of Reality with an associated space-time, different from one level to the other. There are four levels of space-time in classical Realism (three dimensions in space and one in time), whereas quantum realism is associated with more (8). The scientific methodology for dealing with the complexity of the world is by no means a limitation, since transdisciplinarity is globally open, respectful of other approaches, and *trans-operates at different levels of Reality*, in terms of *different levels of perception and representation*.

The fact that the transdisciplinary methodology is restricted by neither spatial nor temporal boundaries is significant, since it allows for a consideration in the study of a dynamic process which involves a confluence of past and present, and space without boundaries. According to Berger, transdisciplinarity makes possible the virtualization of the learner’s experience because events are not defined in time or place but by “*trajectories*, or more precisely on the actual movement of these trajectories implied by the passage taking place”. The transdisciplinary paradigm is:

a multiform vector, espousing tradition as well as innovation and preventing either of them from being immediately re-inscribed within frames of reference based on distinct, if not opposing, categories... The essence of this space is the virtual and not the “potential” nor the predetermined. It is a qualitative space in which the vector trans-operates according to the attitude that Piaget for the first time specifically called transdisciplinary (214).

Logic: The logic of the included middle

A key concept of transdisciplinarity is the logic of the included middle, and how it relates to levels of Reality and levels of perception. The logic of the included middle - in French, *Le Tiers*

Inclu (Nicolescu, 1998), was discovered by Stéphane Lupasco (1900-1988) and later given visibility by the transdisciplinary thinkers. Unlike classical logic, with its contradiction between A and non-A, and the exclusion of a middle term, Lupasco posits an alternate logic without such a contradiction, in which the middle or third term T is included, rather than excluded.

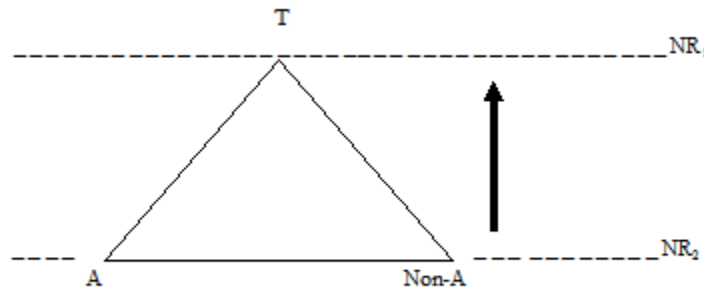


Fig. 1. Symbolic representation of the action of the included middle logic (Source: Nicolescu, *In Vitro and in Vivo Knowledge – Methodology of Transdisciplinarity*). Reprinted with the permission of Hampton Press.

Transdisciplinarity does not exclude classical logic. “The recognition of the existence of different levels of reality governed by different types of logic is inherent in the transdisciplinary attitude.” (Nicolescu, “Charter”, *Manifesto*, art. 2, 148). Nicolescu states that the logic of the included middle relates to levels of Reality in the following way:

1. There are in Nature and in our knowledge of Nature different levels of Reality and, correspondingly, different levels of perception.
2. The passage from one level of Reality to another is insured by the logic of the included middle.

The structure of the totality of levels of Reality or perception is a complex structure: every level is what it is because all the levels exist at the same time. (Nicolescu, *In Vitro*, 10).

Complexity

Complexity, which results from the simultaneous existence of multiple levels of Reality, must be emphasized before we consider art as a dynamic phenomenon. The work of art lives in the past as well as the present (and potentially, in the future). Furthermore, the work may be

important in different cultures. The study will show subsequently that the transdisciplinary paradigm has the potential to transcend other boundaries, such as that between Subject and Object.

Values and relationships

Fundamental among the values of the transdisciplinary paradigm are *rigor*, *opening* and *tolerance*: “*Rigor* in argument, taking into account all existing data, is the best defense against possible distortions. *Opening* involves an acceptance of the unknown, the unexpected and the unpredictable. *Tolerance* implies acknowledging the right to ideas and truths opposed to our own. (Nicolescu, “Charter,” *Manifesto*, art. 14, 151).

Transdisciplinary thinkers have recognized the value of feelings as an asset in education. Article 11 of the “Charter” states: ...”Transdisciplinary education revalues the role of intuition, imagination, sensibility and the body in the transmission of knowledge” (Nicolescu, “Charter” *Manifesto*, 150). Nicolescu describes the Chicago experiment in which Leon Lederman worked with children from the most disadvantaged neighborhoods. He notes that the Chicago experiment demonstrated that “the intelligence assimilates knowledge much better and more rapidly when this knowledge is also understood with the body and feeling. This is a prototype of the emergence of a new type of intelligence, founded on equilibrium between analytic intelligence, feeling and the body.” (“Transdisciplinary Evolution”, 6)

Other researchers also acknowledge the value of *emotion* as an asset to learning. Affective learning was recognized as a powerful tool by Howard Gardner (1983), Goleman (1998), and Salovey, Mayer, and others (for example, 2004). Furthermore, Kort, Reilly and Picard designed an experiment which deals with feelings during the learning process: all the steps that involve “making mistakes (feeling confused); recovering from them (overcoming frustration); deconstructing what went wrong (not feeling dispirited); and starting over (hope and enthusiasm)” (1). The emotional experience of the learner, or Subject, will be shown to be a cornerstone of understanding meaning.

Revaluation of the Subject

Our veneration for science and efficiency has led to a near deification of objective values and the consequent reification of animate beings. Western society thinks of the individual's value (worth) in objective terms (financial worth, productive efficiency in the workplace, actuarial value). It is for this reason that some “measure” learning by calculating grades and grade point averages, while the inner being, the Subject, is considered by some of less importance. Yet in the transdisciplinary methodology, the Subject is of paramount importance. The “Charter's” first Article states that “submitting the human being to reductive analyses within a framework of formal structures is incompatible with the transdisciplinary vision” (“Charter”, *Manifesto*, art. 1, 148); and Article 4 states: “An excess of formalism, rigidity of definitions and claim to total objectivity, entailing the exclusion of the subject, can only have a life-negating effect” (149). The Report to UNESCO of the International Commission on Education in the Twenty-First Century proclaimed the four pillars of a new kind of education (“learning to know, learning to do, learning to live together, and learning to be”). “Learning to be” implies learning to live well, to overcome loss and defeat, to remain persistent in the face of life's setbacks. The Commission accepted the interdependency of people “who are able to adapt themselves to the changing exigencies of professional life, and who are endowed with a permanent flexibility, which is always oriented towards the actualization of their interior potentialities” (Nicolescu, “Transdisciplinary Evolution”, 4).

It is in terms of the importance of *understanding meaning* as opposed to *learning facts*, and in the context of the transdisciplinary elements outlined above – levels of Reality and levels of perception, the logic of the included middle, complexity, values and relationships and the revaluation of the Subject, that we show through the teaching of a work of art – *Le Vieux de '37*, - the potential value of the transdisciplinary paradigm in FLS.

Le Patriote

Borges was convinced of the transformative power of art (opening citation). Gioia also held that art transforms (2008). Visual art, limited for this study to two-dimensional works, offers a way of thinking about reality alternative to traditional approaches in the academic classroom. Through a visual perception of reality, the learner thinks about optics, perspective, line, form, and color. The creation and interpretation of art involve non-linear thinking, emotion, intuition

and imagination. Deeper understanding may occur if the learner has multiple entry points to the meaning (visual, cognitive, analytical, affective); multiple levels of representation (literature, authentic historical documents, music); and multiple reflective experiences (discussing, debating, presenting, creating a song, film, or video).



Le Vieux de '37, also known as *Le Patriote*. Henri Julien, circa 1907-1908

Web. 3 April 2010. Public domain

A folkloric illustrator and caricaturist who sensed the pulse of his compatriots, Henri Julien (1852-1908) created *Le Vieux de '37* in the first decade of the 20th century. The image was associated with a poem written in the 1880's by Louis Fréchette, entitled "Le vieux patriote". According to Hardy, the illustration was apparently originally a pen and watercolor drawing

whose existence we can now only deduce through mechanical reproductions. *Le vieux de '37*, image of the stereotypical “habitant”, which was later renamed *Le Patriote*, and Louis Fréchette’s poem evoke the failed Rebellion of 1837-1838 (4-5) and encapsulate the mood of the Québécois around the turn of the last century. The poem is about the defeat of the French-Canadian volunteers, or patriots, by British forces led by General Colborne during the Lower Canada Rebellion (1837-1838) as they attempted to free Lower Canada, now Québec, from the British Empire.

A short excerpt¹ of Fréchette’s poem appears below:

Quand furent épuisés tous les autres moyens,
 Nous avons dit un jour : – Aux armes citoyens!...
 Nous n’avions pas, c’est vrai, de très grandes ressources!
 Nous avons même un peu le diable dans nos bourses;
 Il fallait être enfin joliment aux abois,
 Avec de vieux fusils et des canons de bois
 Pour déclarer ainsi la guerre à l’Angleterre;
 Mais des hommes de cœur ne pouvaient plus se taire.
 Plutôt que sous le joug plier sans coup férir,
 Nous avons tous jugés qu’il valait mieux mourir.

A full version of the poem “Le vieux patriote” can be found on the Web (note 1). This excerpt makes clear why the volunteer patriots fought against the British, whom they viewed as occupiers: Notwithstanding their poverty, their antiquated weapons, they faced death because they felt they had no recourse. Learners at the advanced level, studying the poem and the image, experience multiple levels of Reality - cognitive and visual. Those multiple levels deepen understanding of the *meaning* of the circumstances of the Rebellion and subsequent history.

The Heritage of Québec: “Le Patrimoine”

Le Patriote (as image and symbol) embodies a part of Québec’s heritage – *le patrimoine québécois*. The Rebellion of 1837-1838 inspired the creation of many other works which help

learners understand the meaning of events in Lower Canada. Paintings include the documentation of all the major battles of 1837, St Denis, St Charles, and St Eustache. *Back View of the Church of St. Eustache and Dispersion of the Insurgents* by Charles Beauclerk (1813 - 1861), for example, commemorates that battle December 14, 1837. Heroic events commemorated during 1837-1838 were the *Death of Jean-Olivier Chenier*; and *Patriots at Beauharnois*.

Contextual cognitive learning deepens understanding. Students understand the meaning of events by a careful study of the work: for example, in the *Assemblée des six-comtés 1837* which depicts patriot leader Louis-Joseph Papineau speaking to the crowd (represented below), there are three flags: one that evokes the French Revolution, a second - the patriot flag - and a third reminds the viewer of the influence of the American Revolution in Lower Canada. As is the case of *Le vieux de '37*, this work can be studied in the context of readily available primary source documents such as Papineau's correspondence, delegates' names, and in certain cases, a summary of their statements are readily available on the Web. Students can engage in creative activities which allow them understand and explore virtually values and relationships.



Assemblée des six-comtés 1837 by Charles Alexander Smith - (painting 1890) Musée national des beaux-arts du Québec. Public domain.

The image of *Le Patriote* has as much relevance for some in twenty-first century Québec as it did in the early nineteenth century. Julien's image which became popularly known through the

work of anthropologist and folk collector Marius Barbeau (1883-1969) by his publication at the National Gallery of Canada *Henri Julien* (1938), became ubiquitous as a symbol of the *Front de libération du Québec*: it served as a roughly drawn, widely reproduced logo in their manifesto and in communiqués (8 October 1970 (no. 5). (Hardy 10). During the 1960s and in 1970, the image symbolized the determination of the Québécois to obtain at a minimum linguistic and cultural freedom, and for some (the *Séparatistes*), a political separation from Canada. French Canadian patriot flags (three horizontal bars, from the bottom, red, white and green) sometimes bear a single or multiple images of Julien's *Le Patriote* image in the middle. The movement commemorating the Rebellion is still alive. For example the *Jeunes Patriotes* maintain a website <http://www.jeunespatriotes.org>; and *La Journée des patriotes* (Patriots' Day) is celebrated every year on the Monday before May 25th. There is an abundance of material about the Rebellions and the eighteenth century and twentieth century patriots (note 2). In 1840, the Durham Report (Report on the Affairs of British North America) created a United Canada and dissolved Québec as an independent region. The emotional legacy is part of *Le patrimoine*, which the Québécois recall in the provincial motto *Je me souviens* (*I remember*).

The potential of transdisciplinary learning

Le Patriote, as art, literature and symbol, is as complex as it is relevant in Québec. Its complexity results from the transcendence of time/space, and from the fact that the image bears a deep emotional burden. Transdisciplinary methodology enables the perception of art in a dynamic context which not only conveys emotion, but also involves a confluence of past and present. The ideas of Paulius Kulikauskas on temporal continuity and heritage are relevant in this respect. Kulikauskas notes the continuity of human development is in the minds and deeds of people.

In retaining manifestations of other times one needs to deeply understand the messages brought to us from the minds of another time, and the message is encoded not just in single manifestations, but also in relationships, in various concepts and paces of time. To be consciously employed as a carrier of continuity, heritage needs to be understood in all its complexity. Life changes, and when the heritage of another time loses relevance, then new meanings and new relevance have to be established. The transdisciplinary vision of

multireferential reality offers a framework for this redefinition of heritage... (112).

Le Patriote has contemporary significance. It symbolizes the aspirations of the Québécois manifest in the Quiet Revolution (*La révolution tranquille*), whose main thrust was linguistic and cultural, (and for some also political). Aspirations to retain a Francophone identity have been expressed not only in art, but also in the literature of Québec (exemplified in Roch Carrier, for adults in *La Guerre, Yes Sir!* and for children “*Le Chandail de Hockey*”). The image of *Le Patriote* provides a *multiform vector* for the learner, which encompasses *tradition* and *innovation*; one which cannot be re-inscribed within frames of reference based on time past and time present.

The space in which *Le Patriote* can be studied is a *virtual* and qualitative space in which the vector *trans-operates*. An analogy is the training of a pilot by means of images which simulate the experience of flying; or video games, which provide virtual experiences in the form of entertainment. Berger explains “telepresence” in the following way:

...the word [virtuality] refers to the creation of an artificial space in which we are invited to “act out” an experience – not only imaginatively, as humans have been doing for a long time, but concretely, at the perceptual level, even though the objects perceived are not actually present. (217).

The FLS classroom can potentially become that virtual space.

Values and relationships

We have observed how the transdisciplinary paradigm can function in a complex environment, at different levels of Reality and different levels of perception. As previously stated, transdisciplinary values that undergird learning are *rigor*, to avoid distortions; *opening*, to allow acceptance of the unknown; and *tolerance* to acknowledge the right to ideas opposed to one’s own. *Emotion*, mentioned as an asset to learning, is also a value in the process of teaching art: since there do not have to be wrong answers in the affective domain, the instructor can be non-judgmental; students who are not afraid of making mistakes are motivated by a desire to learn. A student responding emotionally may react to *Le Patriote*: perhaps empathy for the old man,

perhaps anger when s/he understands why he is fighting. A work of art can actualize the inner potential of the learner. Courage, persistence, enthusiasm despite setbacks – are qualities/feelings that all human beings experience that can be tested out in a virtual setting, while debating, role-playing, or making a video in French.

Transition from Object to Subject: The Logic of the Included Middle.

Transdisciplinarity is complex, dynamic, and open to a multiplicity of levels of perception and representations. The crux of the transdisciplinary paradigm is the logical explanation of the transformation of the learner. This occurs as a function of the emotional response and the virtualization of experience. *Le Patriote* as image is no longer just an Object, but is imbued with a new life mediated by the learner. The learner deepens understanding not only of the meaning of the events of the Rebellion of 1837-1838 but also of his or her own self as Subject. Empathy is created by the learner's virtualization of the experience of *Le Patriote*. The logic of the included middle explains the non-contradiction between A (the Subject-Learner) and non-A (the image of *Le Patriote*). The experience mediated at the affective level is the third term – the included middle. The T factor included between A and non-A is the shared emotion: the learner can understand how *Le Patriote* felt/feels and is empathetic. That new understanding transforms the learner.

Conclusion

The contribution of the transdisciplinary paradigm to FLS has been illustrated with reference to a visual image of importance in Québec, *Le Patriote*. In studies conducted entirely in French, learners reflected on Julien's image in the context of ancillary materials, the poem by Fréchette and primary source documents relating to the Rebellion of 1837-1838. Methods and activities encouraged thinking about *values* and *relationships*. We concluded on the basis of the results that a transdisciplinary approach can *transform* students. The *mind-space* created by the learner's experience is qualitative, and not specifically associated with a spatial or temporal context. Learning, a dynamic process, occurs as a result of a *virtual* experience that creates a change in the learner. The learner's transformation is reinforced if it occurs both at the cognitive

level (analytical learning) and at the emotional level (affective learning). This transformation is explained in terms of a logic associated with transdisciplinary thinking - the logic of the included middle - which explains why the learner can perceive the Other (*Le Patriote*) not as (or not only as) Object, but also as Subject.

The benefits of a study involving art are that art transcends temporal and spatial boundaries; that learning and teaching through art can be non-judgmental; that art can be accessible to younger learners or those who do not excel in cognitive/analytical skills; and that art is a resource where differentiated instruction presents an advantage. For FLS, advantages are that Québec is Francophone; easily accessible; and that Québec has a rich and unique cultural identity.

A study grounded in the transdisciplinarity paradigm offers an approach of value for teachers of French. It has been shown that a transdisciplinary approach focuses on the *understanding of meaning*, not just on the *learning of facts*. Educators need to teach for *values and relationships*; to prepare young people for “learning to know, learning to do, learning to live together, and learning to be” – as individuals and community members. By exploring the confluence of *different levels of reality and levels of perception; logic, and complexity*, the study demonstrates how the image of *Le Patriote* can transform the learner.

Possibilities for further research involve working with learners at different levels of functional proficiency. Art is of special interest: being non-verbal, it provides an easy entry point at all levels of competency, and at all ages. By virtue of geographical proximity, the art of Québec is easily accessible; is of linguistic and cultural interest to learners of French; excellent, easily accessed resources are available to the teacher, (for example, the Musée des Beaux-arts du Québec and Musée virtuel du Canada). A further possibility would be to extend the research, encompassing similar projects with other examples or forms of art or other Francophone regions.

An extension of that research might investigate whether feelings of empathy learned through the transdisciplinary paradigm would result in greater tolerance. Such a study might evaluate learner attitudes to contemporary Québécois, who may still feel their position as a

minority in the Anglophone majority of Canada; or to other ethnic or religious minority groups (Muslim, African-Americans, any group anywhere in a minority). This extended research might eventually show that the transdisciplinary paradigm has the potential to make the learner a more tolerant world citizen.

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¹ A full version of the poem *Le Vieux Patriote* is available at

<http://cgi2.cvm.qc.ca/glaporte/1837.pl?out=article&pno=5577&cherche=DOCUMENTS>

² One example is the Cégep du Vieux-Montréal site which includes primary documents such as the correspondence of Louis-Joseph Papineau; a bibliography; a chronology of events from 1760 to 1840; opinion pieces on the Rebellions; analyses; maps and geographical information; biographies; art work; and quizzes in all totally, at the date of writing, 5817 items in 29 categories. <http://cgi2.cvm.qc.ca/glaporte/1837.pl?out=menu>.

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 - Musée virtuel du Canada
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